

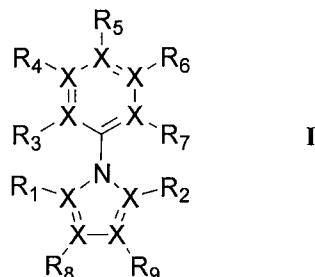
Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 3

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-68. (Canceled)

69. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting cells with an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,



wherein X can be C or N, and when N is at any X position, the corresponding R group is not there;

R₁ and R₂ are independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, phenyl, halogen, CN, nitro, OH and OR, where R is alkyl; and

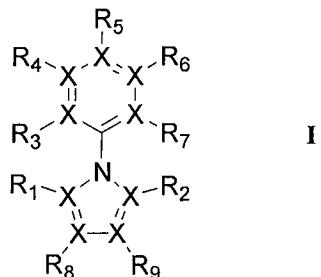
R₃, R₄, R₅, R₆, R₇, R₈ and R₉ are each independently selected from the group consisting of H, alkyl, cycloalkyl, alkenyl, alkynyl, aryl, arylalkyl, heterocyclyl, tetrazolyl, halogen, CHO, OH, CN, NO₂, OR, where R is alkyl, NHR, where R is H or alkyl, COOR, where R is H or

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 4

alkyl, SO_3R , where R is H or alkyl, and SO_2NHR , where R is H or alkyl.

70. (New) The method of claim 69, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

71. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,



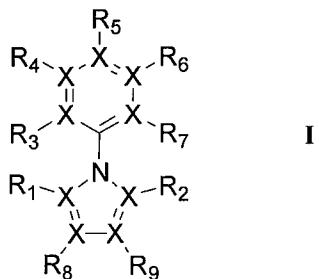
wherein X can be C or N, and when N is at any X position, the corresponding R group is not there;
 R_1 and R_2 are independently selected from the group consisting of H, alkyl, alkenyl, alkynyl, phenyl, halogen, CN, nitro, OH and OR, where R is alkyl; and
 R_3 , R_4 , R_5 , R_6 , R_7 , R_8 and R_9 are each independently selected from the group consisting of H, alkyl, cycloalkyl, alkenyl, alkynyl, aryl, arylalkyl, heterocyclyl, tetrazolyl, halogen, CHO, OH, CN, NO_2 , OR, where R is

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 5

alkyl, NHR, where R is H or alkyl, COOR, where R is H or alkyl, SO₃R, where R is H or alkyl, and SO₂NHR, where R is H or alkyl.

72. (New) The method of claim 71, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

73. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting cells with an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,



wherein X is C;

R₁ is selected from the group consisting of H and methyl;

R₂ is selected from the group consisting of H, methyl and phenyl;

R₃ is selected from the group consisting of H and methyl;

R₄ is selected from the group consisting of H, OH and COOH;

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 6

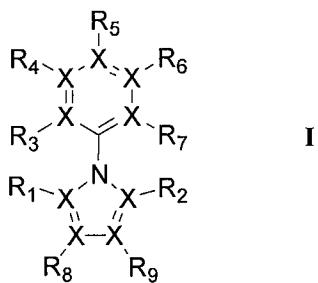
R₅ is selected from the group consisting of H, OH, Cl, COOCH₃ and COOH;

R₆ is selected from the group consisting of H, Cl and COOH;
R₇ is selected from the group consisting of H, OH and methyl;

R₈ is selected from the group consisting of H and CHO; and
R₉ is H.

74. (New) The method of claim 73, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

75. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,



wherein X is C;

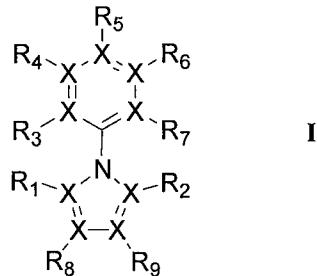
R₁ is selected from the group consisting of H and methyl;
R₂ is selected from the group consisting of H, methyl and phenyl;

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 7

R₃ is selected from the group consisting of H and methyl;
R₄ is selected from the group consisting of H, OH and COOH;
R₅ is selected from the group consisting of H, OH, Cl,
COOCH₃ and COOH;
R₆ is selected from the group consisting of H, Cl and COOH;
R₇ is selected from the group consisting of H, OH and
methyl;
R₈ is selected from the group consisting of H and CHO; and
R₉ is H.

76. (New) The method of claim 75, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

77. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting cells with an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,



wherein X is C, R₄ is COOH, and one of the following:

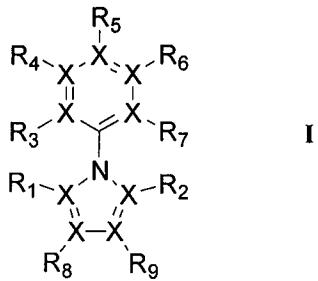
Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 8

- (a) R₁ is methyl, R₂ is phenyl, R₅ is OH, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (b) R₁ is methyl, R₂ is phenyl, R₅ is Cl, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (c) R₁ is methyl, R₂ is phenyl, and each of R₃, R₅, R₆, R₇, R₈ and R₉ is H; or
- (d) R₁ and R₂ are each methyl, R₅ is OH, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (e) R₅ is Cl, and each of R₁, R₂, R₃, R₆, R₇, R₈ and R₉ is H; or
- (f) R₁ and R₂ are each methyl, R₆ is COOH, and each of R₃, R₅, R₇, R₈ and R₉ is H; or
- (g) R₁ and R₂ are each methyl, R₇ is OH, and each of R₃, R₅, R₆, R₈ and R₉ is H; or
- (h) each of R₁, R₂, R₃, R₅, R₆, R₇, R₈ and R₉ is H.

78. (New) The method of claim 77, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

79. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 9



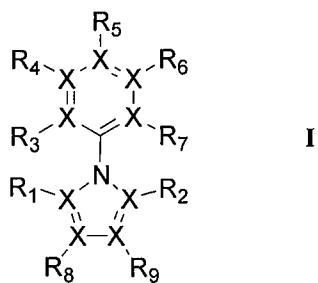
wherein X is C, R₄ is COOH, and one of the following:

- (a) R₁ is methyl, R₂ is phenyl, R₅ is OH, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (b) R₁ is methyl, R₂ is phenyl, R₅ is Cl, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (c) R₁ is methyl, R₂ is phenyl, and each of R₃, R₅, R₆, R₇, R₈ and R₉ is H; or
- (d) R₁ and R₂ are each methyl, R₅ is OH, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (e) R₅ is Cl, and each of R₁, R₂, R₃, R₆, R₇, R₈ and R₉ is H; or
- (f) R₁ and R₂ are each methyl, R₆ is COOH, and each of R₃, R₅, R₇, R₈ and R₉ is H; or
- (g) R₁ and R₂ are each methyl, R₇ is OH, and each of R₃, R₅, R₆, R₈ and R₉ is H; or
- (h) each of R₁, R₂, R₃, R₅, R₆, R₇, R₈ and R₉ is H.

80. (New) The method of claim 79, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 10

81. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting cells with an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,



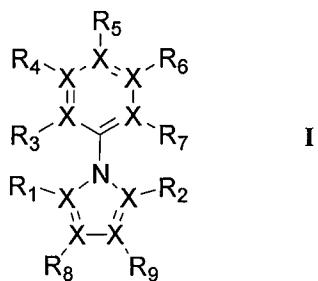
wherein X is C, R₁ and R₂ are each methyl, R₅ is COOH, and one of the following:

- (a) R₄ is OH, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (b) R₆ is Cl, and each of R₃, R₄, R₇, R₈ and R₉ is H; or
- (c) each of R₃, R₄, R₆, R₇, R₈ and R₉ is H; or
- (d) R₆ is Cl, R₈ is CHO, and each of R₃, R₄, R₇ and R₉ is H;
or
- (e) R₇ is OH, and each of R₃, R₄, R₆, R₈ and R₉ is H; or
- (f) R₇ is methyl, and each of R₃, R₄, R₆, R₈ and R₉ is H; or
- (g) R₈ is CHO, and each of R₃, R₄, R₆, R₇ and R₉ is H.

82. (New) The method of claim 81, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 11

83. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,



wherein X is C, R₁ and R₂ are each methyl, R₅ is COOH, and one of the following:

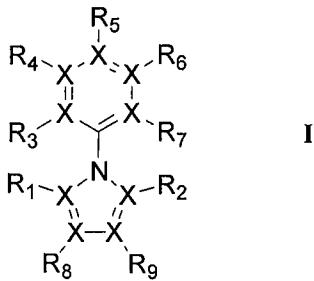
- (a) R₄ is OH, and each of R₃, R₆, R₇, R₈ and R₉ is H; or
- (b) R₆ is Cl, and each of R₃, R₄, R₇, R₈ and R₉ is H; or
- (c) each of R₃, R₄, R₆, R₇, R₈ and R₉ is H; or
- (d) R₆ is Cl, R₈ is CHO, and each of R₃, R₄, R₇ and R₉ is H; or
- (e) R₇ is OH, and each of R₃, R₄, R₆, R₈ and R₉ is H; or
- (f) R₇ is methyl, and each of R₃, R₄, R₆, R₈ and R₉ is H; or
- (g) R₈ is CHO, and each of R₃, R₄, R₆, R₇ and R₉ is H.

84. (New) The method of claim 83, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

85. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 12

cells with an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,



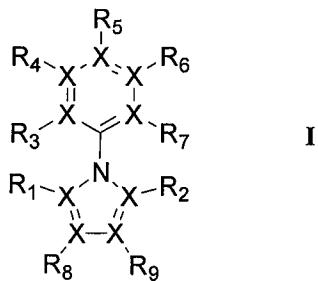
wherein X is C, R₆ is COOH, and one of the following:

- (a) R₁, R₂ and R₇ are each methyl, and each of R₃, R₄, R₅, R₈ and R₉ is H; or
- (b) R₁ and R₂ are each methyl, and each of R₃, R₄, R₅, R₇, R₈ and R₉ is H; or
- (c) R₇ is methyl, and each of R₁, R₂, R₃, R₄, R₅, R₈ and R₉ is H; or
- (d) R₁ and R₂ are each methyl, R₅ is Cl, and each of R₃, R₄, R₇, R₈ and R₉ is H; or
- (e) R₁, R₂ and R₃ are each methyl, and each of R₄, R₅, R₇, R₈ and R₉ is H.

86. (New) The method of claim 85, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.
87. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said

Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 13

mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,



wherein X is C, R₆ is COOH, and one of the following:

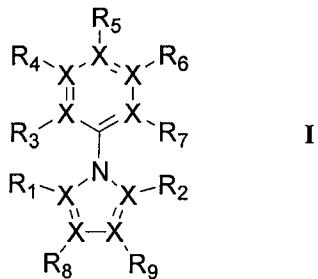
- (a) R₁, R₂ and R₇ are each methyl, and each of R₃, R₄, R₅, R₈ and R₉ is H; or
- (b) R₁ and R₂ are each methyl, and each of R₃, R₄, R₅, R₇, R₈ and R₉ is H; or
- (c) R₇ is methyl, and each of R₁, R₂, R₃, R₄, R₅, R₈ and R₉ is H; or
- (d) R₁ and R₂ are each methyl, R₅ is Cl, and each of R₃, R₄, R₇, R₈ and R₉ is H; or
- (e) R₁, R₂ and R₃ are each methyl, and each of R₄, R₅, R₇, R₈ and R₉ is H.

88. (New) The method of claim 87, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

89. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting cells with an effective amount of a compound of the

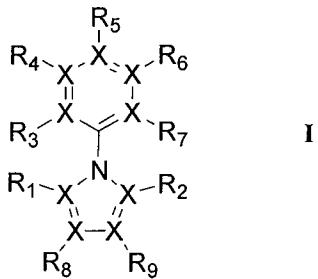
Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 14

formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,



wherein X is C, R₁ and R₂ are each methyl, R₅ is COOCH₃, and each of R₃, R₄, R₆, R₇, R₈ and R₉ is H.

90. (New) The method of claim 89, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.
91. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,

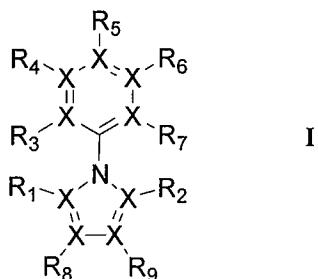


Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 15

wherein X is C, R₁ and R₂ are each methyl, R₅ is COOCH₃, and each of R₃, R₄, R₆, R₇, R₈ and R₉ is H.

92. (New) The method of claim 91, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

93. (New) A compound of the formula I, or a pharmaceutically acceptable salt thereof,



wherein X is C; R₁ and R₂ are CH₃; R₃ is H; R₄ is OH; R₅ is COOH; and R₆, R₇, R₈ and R₉ are each H.

94. (New) A pharmaceutical composition comprising an effective amount of the compound of claim 93.

95. (New) A method for inhibiting replication of human immunodeficiency virus in cells, comprising contacting the cells with the pharmaceutical composition of claim 94.

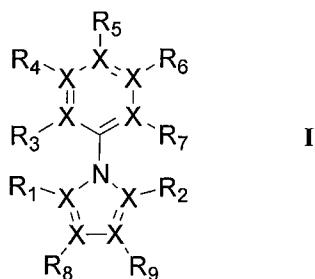
Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 16

96. (New) The method of claim 95, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

97. (New) A method for treating mammals infected with the human immunodeficiency virus, or treatment of Acquired Immunodeficiency Syndrome (AIDS) in a subject, comprising administering to said mammals or subject the pharmaceutical composition of claim 94.

98. (New) The method of claim 97, further comprising administering to said mammals or subject an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

99. (New) A method for inhibiting replication of human immunodeficiency virus in cells comprising contacting cells with an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier, to inhibit the replication of the human immunodeficiency virus,

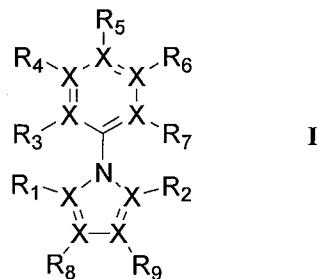


Applicant(s) : Shibo JIANG and Asim Kumar DEBNATH
U.S. Serial No.: 10/706,027
Filed : November 12, 2003
Page : 17

wherein X is C; R₁, R₂ and R₃ are each H; R₄ is COOH; R₅ is Cl; and R₆, R₇, R₈ and R₉ are each H.

100. (New) The method of claim 99, further comprising contacting cells with an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.

101. (New) A method for treating mammals infected with the human immunodeficiency virus, comprising administering to said mammals an effective amount of a compound of the formula I, or its pharmaceutically acceptable salt and a pharmaceutically acceptable carrier,



wherein X is C; R₁, R₂ and R₃ are each H; R₄ is COOH; R₅ is Cl; and R₆, R₇, R₈ and R₉ are each H.

102. (New) The method of claim 101, further comprising administering to said mammals an effective amount of an Acquired Immunodeficiency Syndrome (AIDS) treatment agent selected from the group consisting of anti-HIV agents, anti-infective agents, and immunomodulators.